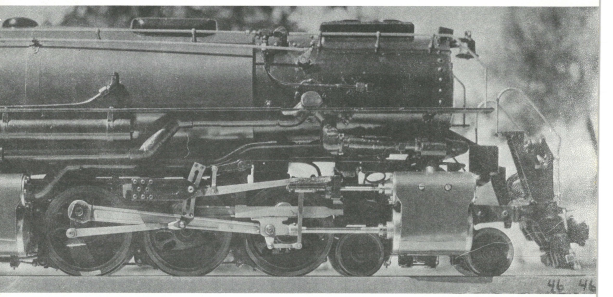
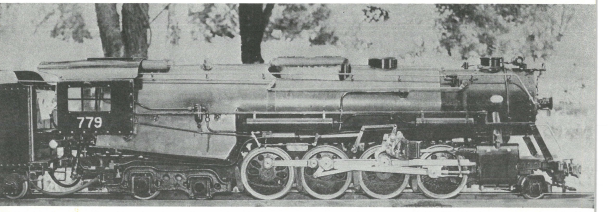
MARCH
1968

45¢

Live Steam®



BIG POWER on Don Strom's Wayzata & Grays Bay



Live Steam magazine

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COVER PHOTOS. A "Challenger" and a "Berkshire" in close-up detail show the efforts of Don Strom in his Live Steam activities. More about these fine locomotives will be found as Hue Brakke describes the Big Power on Don's Wayzata & Grays Bay. Photo by H. E. Brakke.

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William C. Fitt
Post Office Box 635
Cadillac, Michigan 49601

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BIG POWER

Dear Bill:

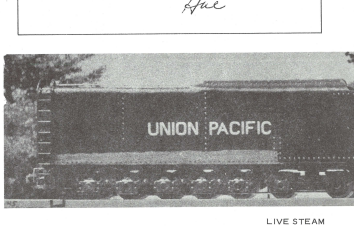
That character, Don Strom, has done it again! Some time ago I wrote that he had a Berkshire under construction and expected to have it done in the Spring or Summer. He was right on schedule and had it ready last Spring for the trial runs (which it didn't need!).

Last Summer he brought it down to Al O'Neil's track at Lake City where he could really let it out on that half-mile track. What an engine! The yardmaster can clean out the whole yard with this one! There's a stretch on Al's track where you run along the Mississinni River for a ways, then around a curve and up a 2.75% grade and then another curve. That separates the men from the boys! I was driving Don's "Beautiful Brute" with two passengers behind me, both of whom passed the 200 mark. I'd estimate about 600# passenger load plus the riding car. I am a little chagrined to mention it but I had overlooked that essential item of fuel for a short period of time and wondered why she wasn't picking up speed after rounding the curve and heading up the 2.75%. ...but she wasn't losing ground, either. Why? There was only 2% on the clock!

By hitting that curve at near tip-over speed and not less than 60# on the clock, my "Green Goddess" can make that grade with little or nothing to spare, and she's known to be a good runner. When you can do it with only 2%, that's something else.

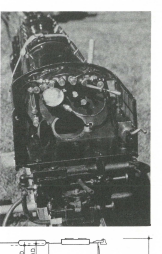
Have seen an awful lot of engines in the past few years and I for one don't know anyone that can top Don Strom. Hope the Windsor track will be ready for next Fall. Might talk Don into taking it down there so you can see it.

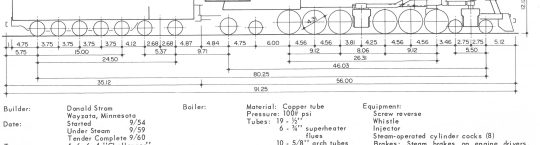
Hue



on Don Strom's Wayzata & Grays Bay

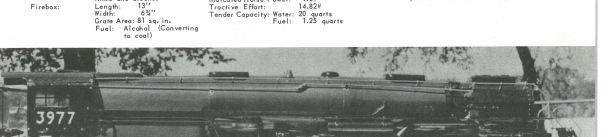
Photos and Report by H. E. Brakke

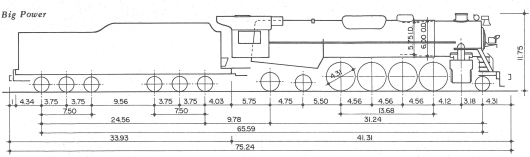




Builder:	Donald Strom Wayzata, Minnesota	Boiler:	Material: Copper tube Pressure: 100# psi Tubes: 19 - 2" 6 - ¾" superheater flues 10 - 5/8" arch tubes 2 - 5/8" syphon tubes Combustion chamber 7" long Superheater: Flue type
Date:	Started 9/54 Under Steam 9/59 Tender Complete 9/60		
Type:	4-6-6-4 "Challenger"		
Scale:	¾" = 1'0"		
Gauge:	3½"		
Prototype:	UP 3977 (Alco 1944)		
Cylinders (4):	Bore: 1-3/8" Stroke: 1-3/4"	Heating Surface:	Tubes 815 sq. in.
		Safety valves:	2
	Piston valves Bore: 3/4" Stroke: 17/32" max. Split rings, port opening 5/32"; lap 3/32", lead 1/64"	Throttle:	Front end type
		Weights in working order:	Engine truck 30# Drivers 215# Trailing truck 50# Total Engine 295# Tender 100# Engine & tender 395#
Valve Gear:	Walschaert with hardened and tempered tool steel links and blocks.	Indicated Horse Power:	1.01
		Tractive Effort:	14.82#
Firebox:	Length: 13" Width: 6¾" Grate Area: 81 sq. in. Fuel: Alcohol (Converting to coal)	Tender Capacity:	Water: 20 quarts Fuel: 1.25 quarts

Equipment:
- Screw reverse
- Whistle
- Injector
- Steam-operated cylinder cocks (8)
- Brakes: Steam brakes on engine drivers, mechanical on tender
- Double smokestack
- Two-cylinder water pump on last pair of trailing truck wheels
- Hand pump for water in tender
- Front engine hinged to rear engine with ball joint.
- Steam and exhaust piping, ball-type universal joints.
- Bearings:
  - Sealed ball bearings on drivers
  - Needle bearings on hardened axles on lead truck, trailing truck and tender trucks.
  - Needle bearings on hardened and ground pins on main rods and side rods.





Builder: Donald Strom
Wayzata, Minnesota
Started 1960
Under steam 1966
Completed 1966
Type: 2–8–4 "Berkshire"
Scale: 3/4" = 1'0"
Gauge: 3½"
Prototype: NKP 779 (Lima 1948)

Cylinders: Bore: 1-3/8"
Stroke: 1-3/4"
Piston valves
Bore: 3/4"
Stroke: 17/32" Max.
Valve Gear: Baker long travel
Firebox: Length: 9"
Width: 6"
Grate Area: 54 sq. in.
Fuel: Petroleum carbon

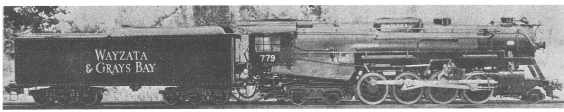
Boiler: Material: Copper tube
Pressure: 100# psi
Tubes: 18 - ½"
3 - 1" superheater flues
4 - 5/8" arch tubes
2 - 5/8" syphon tubes
Combustion chamber
Superheater: Flue type
Heating Surface: Tubes 442 sq. in.
Safety valves: 2
Throttle: Front and type
Booster: Cylinders: (2) Bore: 5/8"
Stroke: 11-16"
Valves: Slide, double acting
Gear ratio: 2:1
Drives last pair of wheels on trailing truck

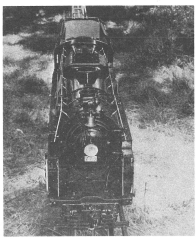
Weights in working order:
Engine truck 20#
Drivers 155#
Trailing truck 35#
Total engine 210#
Tender 100#
Engine & tender 310#

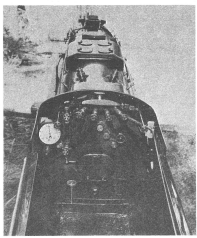
Indicated Horse Power: .5069
With booster: .5889
Tractive Effortс: 7.41#
With booster: 9.1380#
Tender capacity: Water: 16 quarts
Fuel: Petroleum carbon

Equipment:
Turbo-generator for headlight
Sniffing valves
Steam air pump (2 stage compressor)
Steam water pump
Injector
Hand pump for water, under cab
Steam-operated cylinder cocks
Brakes: Air on drivers
Power reverser: steam
Equalized spring rigging

Bearings:
Sealed ball bearings on drivers
Needle bearings on engine truck, trailing truck and tender trucks.
Needle bearings on main rods and side rods.







Donald Strom

SIERRA SWISS
PRODUCTS ENGINEERING CO.
announces a

Photo Contest!

We need photos for use in our advertising that show small hex-head screws used in modelmaking.

For example: a low-angle shot of cylinders and valve gear with drivers in the background might be a good one.

Prizes...

$100 worth of selected Minibolts as the FIRST PRIZE.

$50 worth of selected Minibolts as the SECOND PRIZE.

$25 worth of selected Minibolts as the THIRD PRIZE.

Rules...

1. Entries shall be black-and-white 8 x 10 prints with the entrant's name and address clearly marked on a gummed label attached to the back.

2. Photos will be judged on the basis of their suitability for advertising hex-head machine screws of model sizes. Composition will account for 50%; clarity for 25%; interest to model builders (eye appeal) 25%.

3. Bob Leonard of Sierra Swiss Products Engineering Company along with the rest of the Leonard Family will be the judges.

4. All entries must be postmarked not later than May 15, 1968 and received by May 22, 1968. All entries become the property of Sierra Swiss Products Engineering Company, but if they are used in its advertising program the entrant may select a $20 assortment of Minibolts.

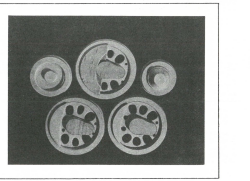
5. Entries shall be addressed to:

   SIERRA SWISS PRODUCTS ENGINEERING CO.
   Big Bear Lake — Photo Contest
   Post Office Box 26
   Fawnskin, California 92333

6. Prize winners will be notified individually by mail as soon as possible after the contest closing date. All winners will be announced in LIVE STEAM Magazine.

7. This contest void where prohibited by law.

1" WHEEL CASTINGS OFFERED ON INITIAL RUN



NEW PRODUCTS items are usually offered by manufacturers or suppliers, but this one has a different twist. Miles A. Snyder of 711 Hillgrove Avenue, LaGrange, Illinois 60525, has completed the patterns for 1" scale 63" diameter Boxpok drivers with light, medium and heavy counter-weights as well as 36" Timken extended hub lead truck wheels and 42-43" trailing truck and tender wheels. He plans to have them cast in iron or mild steel and offers to have extra castings made for those interested. The cost will be the foundry price plus shipping charges. For more information write to Miles Snyder at the above address.

BLS DIRECTORY ORDERS ACCEPTED!

IT'S TO THAT POINT! We plan to print the new Directory just as soon as the April issue of LIVE STEAM is mailed, and to help us know how many we should run we will accept orders now at the $2.00 price. After the 1st of May the price will be $2.25 because each copy will have to be addressed and mailed individually; by using our addressing stencils and the bulk mailing permit we can do the work much faster and at a better postage rate.

It appears that it will be about 150 pages plus a Live Steam Club Directory with maps locating the club tracks for those clubs that furnished the information. Names will be alphabetically listed by states and include such information as has been supplied regarding the scale, equipment and facilities of each Live Steamer.

The book will be 5½" x 8½" and will be plastic-bound with heavy paper covers. An advertising section will help travelling Live Steamers locate suppliers and advise them if visits can be arranged.

Order your copy now at the $2.00 price for distribution about April 30th, 1968! (Make checks payable to LIVE STEAM.)

JACK PREST ASSUMES DUTIES AS SECRETARY OF CANADIAN DIVISION OF BROTHERHOOD OF LIVE STEAMERS

Big news for Canadian Live Steamers is the establishment of their own Canadian Division of the Brotherhood of Live Steamers!

Jack Prest of 2814 Everts Avenue, Windsor, Ontario, answered the call for a Canadian Secretary and will now handle all Live Steamer registrations for his country.

In order to get Jack supplied with information, each Live Steamer in Canada should send his name, address, club affiliations, scale and gauge, equipment and any other pertinent data for his files. Jack wants to cross-reference the material so that he can offer assistance on names as well as supplies and construction details.

All of us wish Jack the best in this task and our sincere appreciation for his interest and effort.

ADDITIONAL NEWS ON PAGE 10

MID-SOUTH LIVE STEAMERS PLAN SPRING MEET

The 7½" gauge track of Austin Barr's Whitehall & Southern will be the site of the Mid-South Live Steamers' Spring Meet on April 20th and 21st. With work progressing fast towards completion of an 1½" 4–6–0, it looks as though there will be company for the 4–6–2 that was the first piece of equipment operating.

With other motive power in various stages of construction and mention that the Nashville Chapter of the M-SLS now meets monthly at different member's homes, it looks like there will be much Live Steam activity to report from this area of the country.

WINTON BROWN DONATES MOGUL KIT TO GGLS

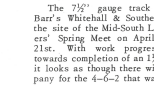
Announcement in the February issue of "THE CALL BOY" (monthly club paper of the Golden Gate Live Steamers) brings wonderful news to members of that organization.

Acknowledging that many members of the club may never have the opportunity to build an engine of their own but still contribute generously to the activity of the group, GGLS President Winton Brown has offered to supply a complete set of castings and a completed and tested boiler for one of his firm's 1½" Moguls if the club will take on the project of completing the engine.

The 2–6–0 is to be kept at the club track and be available for any member to operate, with a committee established to be responsible for the maintenance and instruction for operation. Thus, members who do not have their own Live Steam locomotive will be able to share in the thrill of operating without the fears that always accompany the operation of "someone else's" engine.

The Golden Gate Live Steamers are indeed fortunate . . . and Winton Brown is to be highly commended for his generosity.

Scheduled Meets



APRIL

20 MID-SOUTH LIVE STEAMERS
21 Annual Spring Meet – 7½" gauge
Austin F. Barr, Jr. track
Jct. Hwys 1 & 214 at Whitehall
R. F. D. 2
Harrisburg, Arkansas 72432

MAY

17 PIONEER VALLEY LIVE STEAMERS
18 Annual Spring Meet
19 3½" – 4¾" – 7½"
Brenton W. Barnfather, Secy.
3 Fleetwood Drive
Sandy Hook, Conn. 06482

25 GOLDEN GATE LIVE STEAMERS
26 Annual Spring Meet
2½" – 3½" – 4¾" – 7½"
Ron Downer, Secy.
1274 36th Avenue
San Francisco, California 94122

30 SENNYSLVANIA LIVE STEAMERS
31 Annual Spring Meet
1 2½" – 3½" – 4¾"
Frank H. Moore, Jr., Secy.
211 Walnut Avenue
Wayne, Pennsylvania 19087

30 LOS ANGELES LIVE STEAMERS
31 Annual Spring Meet
1 3½" – 4¾" – 7½"
2 W. Ross Crawford, Secy.
6900 Roger Street
Canoga Park, Calif. 91304

JUNE

14 NEW JERSEY LIVE STEAMERS
15 Annual Spring Meet
16 3½" – 4¾" – 7½"
Ralph Green, Secy.
845 Kilsyth Road
Elizabeth, N. J. 07208

AUGUST

24 GOLDEN GATE LIVE STEAMERS
25 Annual Fall Meet
2½" – 3½" – 4¾" – 7½"
Ron Downer, Secy.
1274 36th Avenue
San Francisco, Calif. 94122

31 PENNSYLVANIA LIVE STEAMERS
1 Annual Fall Meet
2 2½" – 3½" – 4¾"
Frank H. Moore, Jr., Secy.
211 Walnut Avenue
Wayne, Pennsylvania 19087

SEPTEMBER

20 NEW JERSEY LIVE STEAMERS
21 Annual Fall Meet
22 3½" – 4¾" – 7½"
Ralph Green, Secy.
845 Kilsyth Road
Elizabeth, N. J. 07208

OCTOBER

11 PIONEER VALLEY LIVE STEAMERS
12 Annual Fall Meet
13 3½" – 4¾" – 7½"
Brenton W. Barnfather, Secy.
3 Fleetwood Drive
Sandy Hook, Conn. 06482

REGULAR RUN DAYS

GOLDEN GATE LIVE STEAMERS
Every Sunday, weather permitting
2½" – 3½" – 4¾" – 7½"
Ron Downer, Secretary
1274 36th Avenue
San Francisco, Calif. 94122

JAMUL VALLEY RAILROAD CLUB
3rd Sunday of each month
7½" gauge
Charles Bothehill, Secretary
4675 Coronado Avenue
San Diego, Calif., 92102

LOS ANGELES LIVE STEAMERS
1st Saturday & Sunday each month
3½" – 4¾" – 7½"
W. Ross Crawford, Secretary
6900 Roger Street
Canoga Park, Calif. 91304

NEW JERSEY LIVE STEAMERS
1st & 3rd Sundays each month
3½" – 4¾" – 7½"
Ralph Green, Secretary
845 Kilsyth Road
Elizabeth, N. J. 07208

PENNSYLVANIA LIVE STEAMERS
2nd Sunday, May thru October
2½" – 3½" – 4¾"
Frank H. Moore, Jr., Secy.
211 Walnut Avenue
Wayne, Pennsylvania 19087

RIVERSIDE LIVE STEAMERS
4th Saturday & Sunday each month
7½" gauge
Merrill Van Naty, Secretary
677 Flynn Street
Riverside, Calif. 92507

SOUTHERN CALIFORNIA LIVE STEAM CLUB
3rd Sunday each month
3½" – 4¾" – 7½"
K. G. Mayer, Secretary
2764 Maple
Rialto, California 92376

1967

VOLUME ONE

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THE BOILER: SAFETY FIRST, SAFETY LAST AND SAFETY ALWAYS

SO YOU WANT TO BUILD A LIVE STEAM LOCOMOTIVE

CHAPTER 9

by Joseph F. Nelson

In this writer's opinion, too many builders and/or operators of Live Steam locomotives consider these small locomotives in the same class as a gasoline-driven model airplane or a scooter – a harmless toy for doting grandfathers to build for their six – or seven-year old grandsons. It is hoped that grandpa is merely using this philosophy (which he may believe himself) on his wife so that she won't call him an overgrown kid and say, "For heaven's sake, why don't you grow up and quit playing with toys?" We might as well face the facts: most men, particularly if they are mechanically inclined, never get over the idea of having some kind of release from reality; i.e. miniature railroads, gasoline-driven model airplanes, go-carts, fishing equipment, boats, guns, airplanes, and so on down the line. It does take a brave man to announce to his family that he is building this locomotive for himself and not for his kid or grandson.

The Live Steam locomotive is perfectly safe when it is built and operated by a responsible adult who is familiar with the hazards involved and treats the boiler with proper respect, rather than the person who treats it like a tin can mounted on wheels that makes steam to drive itself.

How many people would give their son or grandson a stick of dynamite and a hammer and tell him to go out on the sidewalk and have some fun? Oh, that's silly, the kid probably couldn't hit it hard enough to detonate it – or could he? This is equivalent to turning a kid or novice adult loose with a Live Steam locomotive and saying, "Now watch the water!" whatever that means to him.

Another type of person that is a definite hazard to everyone around him is the verbal gymnast who can twist any rule, law, or legal passage around to justify anything. These verbal gymnastics have absolutely no effect on the laws of physics, and a boiler will blow up in his face just as quick as it will for the man who is good to his mother and loves kids and dogs! A boiler is no respector of position or rank.

Most people are under the impression that because the Live Steam boiler is rather small and doesn't hold much steam, a ruptured crown sheet would not be a serious matter. Nothing could be further from the truth! It isn't the steam in the boiler that does the damage, it is the potential energy in the boiler water at the temperature of the operating saturated steam pressure. This water is ready to turn into steam just as soon as there is a drop in pressure in the boiler. This means that any set steam pressure prevents further evaporation of the boiler water unless more heat is supplied or the steam pressure is reduced. For example: when the throttle is opened with the boiler at operating pressure, the pressure inside the boiler is slightly reduced, and then water evaporates and makes steam. Since the cylinder exhaust creates draft, the fire burns at a faster rate which evaporates more water to keep the boiler pressure relatively steady. When the throttle is closed, the pressure rises slightly inside the boiler which reduces evaporation, and coupled with the fire going into a quiescent state, the evaporation stops. Frequently, the safety valves may pop which is due to the residual heat in the firebox since time is involved for heat to transfer through the firebox sheets; however, the whole phenomenon as described above obeys the laws of physics and the better a Live Steam locomotive engineer understands the principles involved, the more success he will have with his locomotive and less chance of getting hurt.

If, because of low water or corrosion, the crown sheet was overheated, or was weak, and a rupture started, there would be a sudden drop in boiler pressure. This sudden pressure drop could cause all the water in the boiler to turn into steam simultaneously, thereby releasing all of its potential energy before the pressure rise could stop it. Naturally, the original rupture along with the safety valves could not handle all this instantaneous steam, so everything gets blown up, including the engineer and possibly innocent bystanders. However, the chances of a rupture below the water level causing an explosion is relatively small since the spot would not be overheated and water can only go through a hole so fast, and since it would be water and not steam, a sudden pressure drop would probably not happen. It is to be noted that marine engineers always warn oilers and watertenders never to suddenly open a large valve into a long empty steam line since the sudden pressure drop could cause the boilers to explode. A side effect of this for reference information only since it does not apply to Live Steam is: Steam at pressure, entering a long cold line will condense into slugs of water. These slugs of water will travel at a terrific rate down a straight line until they hit a valve or an ell. The water hammer is sufficient to tear things apart. This is what causes the damage when a boiler explodes: Take a 1" scale K-4s as an example:

Steam space	1 gallon (approximately)	231 cu. in.
Water in boiler	2.6 gallons	600 cu. in.

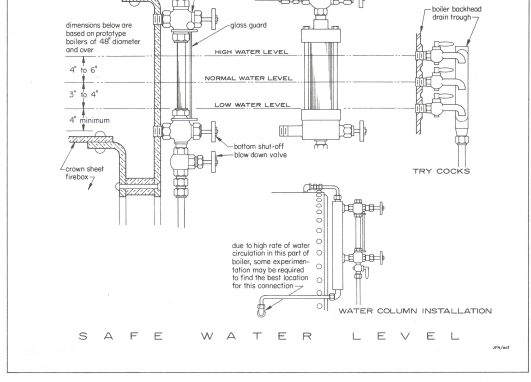
231 cu. in. of steam at 105 PSIG would give about 7 times the volume at atmospheric pressure or approximately one cubic foot of steam. This is why most people think that a ruptured Live Steam boiler is not a major problem. However, one cubic inch of confined water heated to the equivalent temperature of any saturated steam pressure will expand, when suddenly released, to one cubic foot of steam at atmospheric pressure. This means that the 2.6 gallons of water in a 1" scale boiler on a major rupture would expand to 600 cubic feet of steam instantaneously. That is enough energy to tear anything apart. Don't let low water be your downfall!

If during operation, the engineer should come out of his trance and discover that he can't see water in the gauge glass, and, if blowing the glass doesn't give any indication of water, he must haul the fire immediately, regardless of where he is, and let the water inside the boiler quiet down. Under no conditions should he pump water into the boiler at this time, since a shot of cold

water hitting a red-hot crown sheet under boiler pressure could cause the crown sheet to collapse, resulting in a boiler explosion. An explosion would be more apt to happen under these conditions with a steel boiler than with a copper boiler since copper is more ductile than steel. Copper is a better conductor of heat and the heat from the fire would be carried from the hot crown sheet to the sheets below the water level. Of course, any soft solder on the boiler above the water level would stand a good chance of being melted. However, don't trust any boiler, regardless of what metal it is. After the fire has been out for about five minutes, it should be relatively safe to pump water into the boiler. However, find out why there was low water, whether the engineer was day-dreaming, the tender was dry or the water pump or injector quit. An engineer should always be suspicious when the engine starts to steam very freely. Either the fire needs more coal, or water is not being fed into the boiler. Check the gauge glass for low water first, then the fire; now do something about it!

It has come to the attention of this author that some Live Steam locomotive builders do not take the location of the bottom of the gauge glass too seriously. At least two 1½" scale locomotives have been observed that had the bottom of the gauge glass at least ½" below the crown sheet. When questioned about it the locomotive owners said, "That's okay, I know where the crown sheet is." Maybe they do and maybe they don't. In any event, when the Club Boiler Inspector is giving a boiler a hydrostatic test, he should, as an added precaution, check the bottom of the water glass in relation to the crown sheet. Measurements should be taken from the top of the firedoor and since the crown sheet has thickness, that also must be added in. This precaution may save somebody's life since the engine owner might let one of his pals run his engine and neglect to tell him where the top of the crown sheet is in relation to the bottom of the water glass.

One of the rules for firetube boilers over 48" in diameter is that the lowest point in the gauge glass where water can be seen and/or the lowest gauge cock shall be a minimum of 4" above the highest heat transfer surface in the boiler. Since practically all Live Steam locomotives are based upon prototypes with boilers larger than 48" in diameter, the dimension from the bottom of the gauge glass to the top of the crown sheet should be a minimum of four scale inches. This scales out to: about ¼" for ¾" scale, 11/32" for 1" scale and ½" for 1½" scale. Since some things do not scale down linearly, particularly steam and water, the above figures do not give much protection to the crown sheet. It might be good practice to be realistic and add 25% to the above scaled-down dimensions except on engines with long boilers like the 1½" scale Northern where 50% or


boiler shell
backhead
cleanout
top shut-off
do not connect to turret
boiler backhead drain trough
glass guard
dimensions below are based on prototype boilers of 48" diameter and over
HIGH WATER LEVEL
4" to 6"
NORMAL WATER LEVEL
3" to 4"
LOW WATER LEVEL
4" minimum
bottom shut-off
blow down valve
crown sheet firebox
TRY COCKS
due to high rate of water circulation in this part of boiler, some experimentation may be required to find the best location for this connection
WATER COLUMN INSTALLATION

SAFE WATER LEVEL

Serial #_____

LOS ANGELES LIVE STEAMERS, INC.
Travelcum, Griffith Park, Los Angeles, Calif.

BOILER AND SAFETY VALVE INSPECTION RECORD

I hereby certify that my boiler

Classification_____ Gauge_____ No._____
Was tested hydraulically on_____, 19___ to_____ P.S.I.
and is safe for working pressure not to exceed_____ P.S.I.
Safety Valve No. 1 opened at_____ P.S.I., No. 2 at_____ P.S.I.

Owner_____ Address_____

NULL AND VOID SIX MONTHS AFTER INSPECTION DATE

Expires_____, 19____

Owner's Signature_____

Test Witnessed by:_____
Chief Boiler Inspector

Southern California Live Steamers Inc.
Certificate of Boiler and Safety Valve Inspection.

Owner _____
Address _____
Classification _____ Guage _____ No. _____
Was tested hydraulically on _____ 19___ to _____ P.S.I.
Safety valve No. 1 opened at _____ P. S. I., No. 2 at _____ P. S. I.
Working pressure not to exceed _____ P. S. I.
Plate No. _____ Expires December 31, 19__
Remarks _____

_____
Chairman of Safety Committee.

S.C.L.S. BOILER CERT

Certificates of Boiler Inspection and Engine Inspection Plate as issued by two Live Steam Clubs. Boiler Inspections made regularly by clubs are a most important function of those organizations.

½'' would be a better figure since, when those engines with long boilers are headed down hill, the crown sheet can very easily become uncovered.

Most Live Steam clubs have a yearly boiler inspection where boilers are tested to 1½ times their maximum operating pressure (highest safety valve setting). Now and then some engine owner refuses to let the Club Boiler Inspector test his boiler to the 1½ times figure (standard hydrostatic test for fire tube boilers). The reason usually given is that the engine owner doesn't want his boiler squeezed all out of shape. If a cold boiler cannot stand 1½ times its operating pressure, it certainly would be unsafe to operate it hot at its running pressure. It should be ruled unsafe for operation where there are people present.

It is customary on a new boiler that will operate at 100 to 125 PSIG to give it the first test to 300 PSIG before installing the lagging and mounting it on the engine chassis. If it passes this test, all leaks will have been stopped and it will easily pass the 1½-times test.

If when making a hydrostatic boiler test, a "plink" is heard, a staybolt has snapped. Since any operation would be dangerous with broken staybolts, don't fire up the boiler until the staybolt has been replaced even though it may mean stripping the boiler and removing it from the chassis. If one staybolt is corroded bad enough to snap under test, chances are that there are others ready to go.

A firebox or smokebox leak is generally a leaky tube, usually a corroded steel boiler tube. A leaky copper tube due to corrosion is practically unheard of although a swaged and not silver-soldered tube may leak at the tube sheet. Most throttles and boiler valves leak slightly under hydrostatic test. This is of no consequence and is usually ignored by the inspector.

Some Live Steam locomotive builders install only one safety valve on their boilers. This is a very unsafe practice and is not permitted on prototype marine, stationary, or locomotive boilers. There is discussion in some Live Steam clubs as to the advisability of forcing members who possibly have engines with only one safety valve to install a second one. The reason that this practice is considered unsafe is that it is possible for safety valve to stick and not "pop" at its preset pressure.

Before leaving the steaming bays (turntable tracks), the Live Steam engineer must run up the steam pressure in the boiler and "pop off" both safety valves, blow the gauge glass (if the water returns quickly, everything is normal; but if the water returns very slowly, there is an obstruction in one of the lines and must be cleared before operating the engine to prevent a burned out crown sheet and possible explosion), blow the whistle, bleed air from the feed pumps, and where mechanical, air or vacuum brakes are used, make a stop test before going out on the "main."

Safety First Rule in Live Steam

mail stop

L.B.S.C.

L. Lawrence, better known to the Live Steam fraternity as "L.B.S.C.," died on November 4, 1967. The nom de plume was derived from the fact that he was an engineman for a time on the London, Brighton & South Coast Railway. This experience of his was before he started to write "Shop, Shed and Road" regularly for the Model Engineer. These articles started in the fall of 1924 and continued right up to his passing with but two or three short lapses.

There is no doubt at all but that it is to his teachings that every Live Steamer owes his ability to build successful small working steam locomotives. His methods and instructions, not only about locomotives but also about machining methods, were simple and practical and were needed for the builder who had the minimum of equipment in his home work shop.

His reminiscences about locomotives and shops contained a wealth of information that was never equalled by anyone else. He wrote a number of "Ghost Stories" that were not only intriguing but also had some very forward-looking ideas about improving the full-size locomotives. These were ideas that everyone of us would have liked to have known more about. His "Lobby Chats" along with the "Tea Bottle" were full of valuable ideas gained from his broad experience with locomotives and machine shop work.

We all owe him a world of gratitude and his passing brings to an end an era in Live Steam.

CHARLES A. "CARL" PURINTON
R.F.D.
BOXFORD, MASSACHUSETTS 01921

BOILER LAWS

In regard to the editorial concerning the Nebraska boiler law, there is a precedent for Live Steam hobbyists changing the boiler law.

In the spring of 1965, Mr. Halsted Park, Jr., of Katonah, New York, started a campaign through his local State Representative and Senator to amend the New York State Labor Law (Section 204) which called for A.S.M.E. code construction and state inspection of all boilers over 15 psi, I believe.

Mr. Park suggested that hobby boilers of less than 2 cu. ft. volume and less than 2 sq. ft. (grate area) be exempted from inspection. His proposal was supported by about 25 letters from Live Steamers plus some good help from his Congressman. The bill passed unopposed.

The New York State Steam Engine Association, Inc., has also been able to amend the state boiler laws to allow the licensing of non-code traction engine boilers.

Here in New Jersey we have a very satisfactory law that has needed no changing from our point of view. Boilers of less than 10 boiler horsepower do not need to be inspected.

At the Pine Creek Railroad (3-foot gauge) we were able to get an 1887 Stephenson 4–4–0T locomotive from Ireland approved within the existing law. The locomotive had a newer boiler constructed in the 1920's with a copper firebox. Because of the non-code construction (it was a good, substantial construction, however), we had to provide drawings and calculations of the boiler before the state would hydro-test it and approve it. The resulting search by friends in Ireland for the required data held us up several years, but approval was granted when we came up with the information.

As far as model boilers are concerned, it is possible to follow the code reasonably well in 1½" scale, but tough when it comes to fittings. Incidentally, when discussing the A.S.M.E. code with inspectors, remember that the section involved is Section V, "Miniature Boilers" and not Section III, "Boilers of Locomotives."

The best bet is to follow Mr. Park's example and get the law changed. He started his campaign in March of 1965, and the law had been amended by May.

By the way, my personal preference is a law which excludes models by boiler horsepower rather than by volume or grate area as it seems to give you a little more flexibility as to what kind of a boiler you can

MICHIGAN ADOPTS A.S.M.E. BOILER CODE AS LAW

At the February meeting of the newly-organized Northwestern Michigan Engine and Tractor Club in Traverse City, Mr. Gordon Besaw of the Michigan Department of Labor's Bureau of Safety and Regulation explained the effect of the new law on hobbyists.

There is little change, he indicated, in the requirements of the boiler law – only in the matter of inspections, of licensing installers and repairers and a restriction on who can repair.

The new law makes it illegal for any individual to build or repair the pressure parts of any boiler shell. This work, including welding, riveting and/or tube repair, can be performed only by a licensed repair shop.

Under the new law it is impossible for any individual to become a "licensed welder" since a license is issued only to the firm employing a person who has earned the license.

In the event the employer and employer sever relations, the "license" becomes void.

The new law requires an external inspection this year with a fee of $5.00 and an annual internal inspection and test with a fee of $10.00 on boilers with 50 sq. ft. or less of heating surface. (On boilers with 50 to 4,000 sq. ft. of heating surface, the fees are $7.00 and $25.00 respectively.) The annual test for miniature boilers is to be made at three times operating pressure while others are tested at 1½ times operating pressure.

Also discussed was the fact that the Michigan law as written makes continuous reference to the "A.S.M.E. Code" but gives few specifics. After purchasing the $2.00 copy of the law from the state, it is necessary to purchase the code for $8.00 from the A.S.M.E. to find out exactly what is required. (There is a lower price available to A.S.M.E. members.)

build; marine or stationary, for example.

The biggest mistake is to put your head in the sand and assume you will be left alone! The *first* thing a prospective club should do on is the boiler laws. In 15 years of operation on the Pine Creek R. R. we have had excellent cooperation with the state people concerning the licensing of our boilers and engineers.

W. ANDREW MORRISON
SUPT. OF MOTIVE POWER
PINE CREEK R.R. DIVN.
N.J. MUSEUM OF TRANSPORTATION, INC.

...from the cupola

As you will see from a couple of other items in this issue of LIVE STEAM, the 1968 issue of the Brotherhood of Live Steamers DIRECTORY is getting close to reality. It's been a big job but we've had help (unexpected help!) from several quarters.

During the period of accumulation of information, we were pleasantly surprised to notice printed post cards ... completely addressed ... showing up from all over Canada. It turned out that Jack Kerr in Winnipeg, Manitoba, had them printed and encouraged his Live Steam friends to complete the information and send them in.

Another set of cards showed up in the mailings and we rather suspect that someone in the Riverside Live Steamers was responsible since nearly all the RLS members are on identically reproduced cards.

The club newspapers too, gave encouragement to their memberships to get the material into us and some even reprinted the coupon for their members.

As we worked on the compilation of names and data, good wife Doris (who complains that there is absolutely no intrigue in that reference!) did all the typing as we checked all cards and coupons against our own mailing lists and club rosters. Without her help it could have taken years to get the material ready for type.

Then, of course, there was all the original work done by Harry Dixon, Ed Kruckeberg, Halsted Park, and Pershing Scott which was turned over to us for reference. Our hearty "Thank You" goes to you all.

At present it looks like too big a job to repeat yearly, but once the basic information is organized and some sort of a system can be devised, it might well be considered on an every-other-year schedule.

So, if you would like a copy of this DIRECTORY, send in your check as soon as possible, please. This will help us determine how many copies we should run off so that there will be enough for all who want them, but not a big stack of them left on the shelf when the time comes to run a new issue. The schedule is a tentative one, but we will be more explicit in the April issue of LIVE STEAM.

– W. C. F. –

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Items for sale or wanted to purchase by hobbyists. One fee ad included with subscription, additional ads 5¢ per word with order.

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